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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/631,160

07/31/2003

James R. Peterson

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12/15/2005

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EXAMINER

PATEL, NIKETA I

ART UNIT

PAPER NUMBER

2181

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/631,160	<b>Applicant(s)</b> PETERSON ET AL.	
	<b>Examiner</b> Niketa I. Patel	<b>Art Unit</b> 2181	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 January 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent

Number 5,964,859 granted to Steinbach et al. (hereinafter “*Steinbach*”).

3. **Referring to claims 1, 6, 10, 15, 19, *Steinbach*** teaches a method and a memory device interface comprising: determining at least one characteristic of a first input/output (I/O) device [see column 3, lines 53-66] that is coupled to a memory device interface [see column 3, lines 53-67 and column 4, lines 1-6], the memory device interface being configured to enable data transfers between the I/O device and a memory device [see column 3, lines 53-67 and column 4, lines 1-6]; and buffering data corresponding to the first I/O device in a first portion of a buffer of the memory device interface [see column 3, lines 53-67 and column 4, lines 1-6], a size of the first portion being responsive to the at least one characteristic of the first I/O device [see column 3, lines 6-10, 25-27 and column 5, lines 44-62.]

4. **Referring to claims 2, 12, 20, *Steinbach*** teaches further comprising: determining at least one characteristic of a second I/O device that is coupled to the memory device interface [see column 3, lines 53-67 and column 4, lines 1-6], and buffering data corresponding to the second I/O device in a second portion of the buffer [see column 3, lines 53-67 and column 4, lines 1-6],

Art Unit: 2181

a size of the second portion being responsive to the at least one characteristic of the second I/O device [see column 3, lines 6-10, 25-27 and column 5, lines 44-62.]

5. **Referring to claims 3, 7, 17, *Steinbach*** teaches further comprising: receiving data from the first I/O device via a first data transfer link [see column 3, lines 53-67 and column 4, lines 1-6, 'bus']; and receiving data from the second I/O device via a second data transfer link [see column 3, lines 53-67 and column 4, lines 1-6, 'bus'.]

6. **Referring to claims 4, 8, 9, *Steinbach*** teaches further comprising: receiving a first data unit from the first I/O device [see column 3, lines 53-67 and column 4, lines 1-6 and column 5, lines 44-62]; buffering the first data unit in the first portion of the buffer, and transferring the first data unit to the memory device [see column 3, lines 53-67 and column 4, lines 1-6 and column 5, lines 44-62], receiving a second data unit from the second I/O device [see column 3, lines 53-67 and column 4, lines 1-6 and column 5, lines 44-62], buffering the second data unit in the second portion of the buffer, and transferring the second data unit to the memory device [see column 3, lines 53-67 and column 4, lines 1-6 and column 5, lines 44-62].

7. **Referring to claim 5, *Steinbach*** teaches wherein the at least one characteristic comprises at least one of: a rate at which the I/O device is able to read data from the memory device, a rate at which the I/O device is able to write data to the memory device; a bandwidth of a link coupled between the I/O device and the memory device interface, a size of a data unit that the I/O device reads from the memory device per read request a size of a data unit that the I/O device writes to the memory device per write request, a tolerance that the I/O device has for a delay by the memory device interface in fulfilling a write request; or a tolerance that the I/O device has for a

Art Unit: 2181

delay by the memory device interface in fulfilling a read request [see column 5, lines 12-18, 38-43.]

8. **Referring to claims 11, 16, *Steinbach*** teaches wherein the buffer comprises random access memory (RAM) [see column 3, lines 50-52.]

9. **Referring to claims 13, 14, *Steinbach*** teaches wherein the value of the first buffer allocation counter is decremented response to a buffer allocation value being sent to the first I/O device [see column 7, lines 8-35]; wherein the value of the first buffer allocation counter is incremented responsive to data being read from the first portion of the buffer [see column 7, lines 8-35.]

10. **Referring to claim 18, *Steinbach*** teaches wherein the first plurality of registers comprises: a first buffer allocation counter that is configured to enable data received via the first data transfer link to be buffered in the first portion of the buffer [see column 3, lines 53-67 and column 4, lines 1-6 and column 5, lines 44-62]; and a second buffer allocation counter that is configured to enable data received via the second data transfer link to be buffered in the second portion of the buffer [see column 3, lines 53-67 and column 4, lines 1-6 and column 5, lines 44-62.]

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following documents have been made record of to further show the state of the art as it pertains to variable buffers:

Rooney U.S. Pat. App. Pub. No.: 2004/0054823

Art Unit: 2181

Lin et al. U.S. Pat. No.: 6,405,256 B1

Fujimori et al. U.S. Pat. No.: 6,404,770 B1

Minagawa et al. U.S. Pat. App. Pub. No.: 2005/0002642 A1


Dixon U.S. Pat. App. Pub. No.: 2002/0087758 A1

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Niketa I. Patel whose telephone number is (571) 272 4156. The examiner can normally be reached on M-F 8:00 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dov Popovici can be reached on (571) 272 4083. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NP  
12/2/2005

  
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